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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,052	11/20/2001	Geert Arnout Awater	7-3-15	1022
46900	7590	08/10/2005	EXAMINER	
MENDELSON & ASSOCIATES, P.C. 1500 JOHN F. KENNEDY BLVD., SUITE 405 PHILADELPHIA, PA 19102			WONG, LINDA	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/989,052

Applicant(s)

AWATER ET AL.

Examiner

Linda Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 May 2005.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5, 7-16 and 18-22 is/are rejected.  
7) ☒ Claim(s) 6 and 17 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 20 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 5/20/05. These drawings are accepted.

### *Specification*

2. The changes to the abstract received on 5/20/2005 are accepted.
3. The changes to the specification received on 5/20/2005 are accepted.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-5,7-16,18-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarkar (US Publication No.: 20020057664) in view of Somayazulu (US Publication No.: 20020122466).
  - a. **Claim 1**, Sarkar discloses a correlating the received signal using a first sub-modulating codes (Fig. 3, labels 15 and PSC Sequence), selecting a first correlated signal (Fig. 3, label 16), correlating the first correlation signal with a second sub-modulation codes (Fig. 3, labels 22A, and C1,C2,...,C17), and selecting a maximum second correlation signal (Fig. 3, label 23A). Although

Sarkar does not teach phase modulating the first correlation result using a second set of correlators with phase modulation codes, Somayazulu discloses a correlation system, wherein the samples of the signal received are correlated using phase shift key complementary codes to modulate the signals and selecting the maximum of the correlated signals to select a subcode or symbol.

(page 4, paragraphs [0032], [0033], [0034], [0035], [0036], [0037], [0038], [0039] , page 1, paragraph [0007], lines 1-3, and page 6, paragraph [0053], lines 22-27) It would be obvious to one skilled in the art to replace the sequence codes used to provide a second modulated or correlated signal disclosed by Sarkar with the complementary code keying (CCK) modulation codes use to phase modulate the correlated signals disclosed by Somayazulu to achieve higher data rates, provide bandwidth efficient phase shift keying modulation, and reduced number of correlators. (Somayazulu, page 2, paragraph [0012])

- b. **Claim 2**, Sarkar discloses selecting the maximum correlation signal, wherein the correlation signal is based on the second modulation codes. (Fig. 3, labels 22A, and 23A) Although Sarkar does not explicitly state a function for correlating the signal or a value is determined, Sarkar inherently discloses the value of the function used to correlate the received signal with the codes.
- c. **Claim 3**, Although Sarkar does not explicitly state a function with real and imaginary parts of the first correlated signal, the received signal, inherently, contains real and imaginary parts.

- d. **Claim 4**, Somayazulu discloses the number of first modulation results obtained using CCK code sequences. (page 4, paragraph [0032])
- e. **Claim 5**, Sarkar discloses phase modulating or correlating the selected first correlation signal with each of the second codes and determines the second correlation signal out of the correlated signals with the second codes. (Fig. 3, output from label 16, labels 22A, 23A and C1,C2,...,C17)
- f. **Claims 7,8 and 9**, Although Sarkar does not explicitly state selecting a predetermined phase modulating element with the first, second and third selectors, Sarkar discloses selecting a first, second and third maximum correlation result, which would inherently select any modulating codes or elements used when calculating the correlation result. Since the correlation result selected by the third selector is the combination of the first and second correlation results, the modulating element selected would be a combination of the first and second modulating codes found in the first and second correlation results.
- g. **Claims 10 and 11**, Although Sarkar does not disclose or show a bank of correlators for the first and second correlation, it is, inherent, that the correlation results is equal to the number of correlators. (Fig. 3, labels 15, 18A-18P)
- h. **Claim 12** inherits all the limitations of claim 1, but claim 1 does not recite a controlling unit and a third selector. Sarkar discloses a controlling unit (Fig. 6, label 212) for controlling the first selector based on the first correlation results (Fig. 3, label 16) and a third selector for choosing the output of the correlation

based on the first and second correlated signals. (Fig. 3, labels 29, 28, 18A-18P and 12)

- i. **Claim 13**, Sarkar discloses a controlling unit for determining or controlling the selection of the maximum of the first correlation results. (Fig. 3, label 16 and page 2, paragraph [0023], lines 3-7) Although Sarkar does not disclose the function is determined by the modulation type of the second modulation code, Somayazulu discloses using CCK modulation codes, wherein  $\phi_1$  is used to for all chips of the signal and the maximum detection function is dependent on the modulation code comprising  $\phi_1$ . (page 4, paragraphs [0034],[0035], and [0041] and [0042])
- j. **Claim 14** inherits all the limitations of claim 3.
- k. **Claim 15** inherits all the limitations of claim 4.
- l. **Claim 16**, Sarkar discloses a second bank of correlators (Fig. 3, labels 18A-18P) for correlating the first correlation selected result (Fig. 3, labels 15, and 16) with each of a second set of codes (Fig. 3, labels C1,C2,...,C17). Although Sarkar does not explicitly state determining the real values of the second correlation results, the max detection unit (Fig. 3, labels 16, 23A-23P) inherently analyzes the real and imaginary portions of the signal to find the maximum within a plurality of signals. Although Sarkar does not teach phase modulating the first and second correlation results, Somayazulu discloses using CCK modulation codes to phase modulate by correlating the phase of the signal with the CCK modulation codes. It would be obvious to one skilled in the art to

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replace the sequence codes used to provide a second modulated or correlated signal disclosed by Sarkar with the CCK modulation codes use to phase modulate the correlated signals disclosed by Somayazulu to achieve higher data rates, provide bandwidth efficient phase shift keying modulation, and reduced number of correlators. (Somayazulu, page 2, paragraph [0012])

- m. **Claims 18-20** inherit all the limitations of claims 7-9.
- n. **Claims 21 and 22**, Somayazulu discloses CCK symbols used as codes for correlation. (page , paragraph)

***Allowable Subject Matter***

- 5. **Claims 6 and 17** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Linda Wong

A handwritten signature in black ink, appearing to read 'S. Chin', with a large loop at the start and a horizontal line extending to the right.

**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2601**